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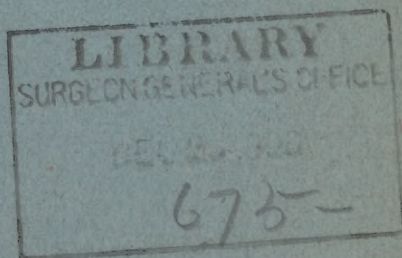
TWO CASES OF ABSCESS OF THE LIVER,
WITH REMARKS ON DIAGNOSIS,

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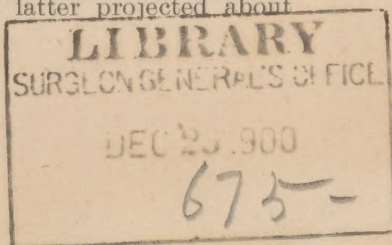
TWO CASES OF ABSCESS OF THE LIVER, WITH REMARKS ON DIAGNOSIS.

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I wish to present to your attention a brief report of cases not of daily occurrence in this region, and to offer a few remarks concerning the diagnosis of hepatic abscess.

CASE I.—N. F. Martin, aged 44, miner, entered the hospital on February 10, 1892. Well until five months before, when he had an attack of pain in the right iliac region without chills or noticeable fever. He did not take to bed, and was kept from work only one day. Two week later the same pain returned, and this time it lasted several days. He said it came with a cold, presumably fever, and it was attended by swelling of the abdomen. Since this attack he has done no work because of a constantly increasing weakness with anorexia, and, he thought, a steady though mild fever. About three weeks ago pain came on in the hepatic region, described as a dull ache without tenderness. During the whole five months there was a moderate diarrhoea, at no time bloody. No dyspeptic disturbance, no chills or jaundice. For two or three weeks he had a slight cough.

Physical examination: Somewhat cachectic appearance, considerable anæmia, no jaundice, evening temperature, 100.5° ; tongue moist and clean. Examination of the chest showed on the left a normal condition. On the right side there was flatness below a line extending from the spine slightly upward and outward across the middle of the scapula to the upper axilla, from which it dropped in front so as to reach the sternum at its junction with the fifth rib. Above this line resonance was slightly tympanitic, with normal respiration; below, the latter was somewhat bronchial for a considerable distance, while vocal fremitus was little, if at all, diminished. The heart was displaced about $\frac{1}{2}$ -inch to the left. There was some fullness of the chest-wall, with a localized cedema over the lateral aspect of the liver, and the lower border of the latter projected about



three inches below the free margin of the ribs in the mammary line. It was even, and tender on pressure. Although the upper line of flatness corresponded very closely with the "S" curve of pleuritic effusion, my diagnosis was hepatic or sub-phrenic abscess, and I attributed this high line of flatness and the cardiac displacement to an upward pressure of the diaphragm. In this I was mistaken; for exploratory puncture, first in the seventh interspace behind and in the sixth in front gave serum, while a third puncture in the eighth in front gave a thick, light-reddish, apparently purulent fluid. It was, of course, now evident that we had to deal with an hepatic abscess, complicated by a secondary pleuritic effusion.

Since the present paper deals solely with the diagnosis of hepatic abscess, I will only take from the records the following data as regards the subsequent history of this patient:

On February 12, two days after admission, I aspirated the abscess, going in twice to the depth of four or five inches in the eighth space between the mammary and axillary line. About one ounce of the same reddish fluid was obtained. This procedure, although done with all possible antiseptic precautions, was the apparent cause of an acute localized peritonitis, which for a few days seriously jeopardized the patient's life. He passed safely through it, however, and on March 1, nineteen days later, aspiration was again performed by Dr. E. J. A. Rogers, and about a quart of the same stuff as before withdrawn. The opening was then enlarged, a drainage tube inserted, and from this time the patient went on to complete recovery, the pleuritic effusion being absorbed without operative interference.

CASE II.—Antonio Conti, aged 50, was admitted to the hospital on January 11, 1895. Spoke no English, hence no history could be obtained. We could only learn that he was apparently well until three months before, when for a week he had a bloody diarrhoea, with vomiting. Upon admission his chief complaint was of pain in the epigastrium and along lower border of ribs behind. Not confined strictly to bed; appetite fair, with slight digestive disturbance, and a moderate diarrhoea.

Physical examination: Temperature, 100°; pulse, 96; respiration, 22. Great emaciation, color decidedly anæmic and

muddy without cachexia. There was no œdema. Heart and lungs negative except a moderate condition of emphysema. Spleen enlarged to about double normal size. Abdomen not distended and otherwise negative except in its relation to the liver. The liver was very considerably enlarged. Though its lower border could not be felt, percussion showed that it extended nearly two inches below the margin of the ribs in the mammary line. There was marked spasmodic contraction of the right rectus muscle, and the epigastrium was tense and quite painful on pressure. It seemed as if the lower border of the liver bulged downward in the epigastrium, and the liver flatness extended farther to the left than normal. The most noticeable feature of the hepatic enlargement was its extension upward. The upper border of the liver was found at the fifth instead of the sixth rib, in the mammary line, extending around to the spine in a nearly horizontal line which behind was also about two inches higher than normal. There was no jaundice, and the urine was negative.

The above examination was not made until the patient had been several days in the hospital, and it lead to the diagnosis of probable abscess of the liver. The temperature had meanwhile been irregular, varying between normal and 100 degrees; but it had now begun to assume the hectic type. There were no chills or jaundice, and the liver remained as before; the epigastric tenderness and upward enlargement without apparent cause of displacement still being the noticeable features of the case. The history of apparent dysentery was also a suggestive factor in diagnosis. No operation was, however, considered at this time, because of the absence of any exact indication as to the seat of the supposed abscess, and the doubt even as to whether there was a single abscess or multiple small foci of suppuration.

During the month of February, the patient grew progressively weaker, and a pretty steady hectic was maintained, the temperature averaging about 102 degrees P. M., and in the morning dropping to normal. The area of hepatic flatness continued to extend upward, until, on March 1, it had reached the fourth rib. Its upper border was even and regular. Otherwise,

with the exception of anorexia and a troublesome diarrhœa, both the general and local conditions showed no change.

About the first of March, however, jaundice appeared for the first time, and with it rigors. From now on, until his death on March 10, rigors were frequent, and jaundice became quite intense. About the same time œdema of the feet appeared, and also a moderate ascites. In the last two or three days friction was found at the base of the right back, and death occurred from exhaustion on March 10.

The autopsy was made by Dr. Freeman on the following day. The abdomen was filled with straw-colored fluid. Spleen considerably enlarged, with evidence of recent perisplenitis. In the liver was a large abscess situated between the two lobes, near the convexity, and containing a pint of pus. Signs of fresh pleurisy were found on the right side of the chest.

CASE III.—Anna Pierson, aged 19, entered the hospital February 5, 1895. There was a doubtful history of past syphilis—patient thought she had had a “bad disease” and there had been eruptions on the feet and legs: Three years before she had been treated in the County Hospital for pelvic peritonitis.

For the past two months had been feeling poorly, though not confined to bed. There had been malaise, chilly fevers in the afternoon followed by fever, and irregularity of the bowels with small but often frequent movements. Her chief complaint on entrance was of great tenderness, and some pain over the region of the liver.

Physical examination showed fair nutrition. Confined to bed but did not appear to be very ill. Tongue moist, with thick, white coat. T., 103; P., 100; R., 24. Urine contained moderate quantity of albumen, without casts, was acid, and had a specific gravity of 10.10.

The heart and lungs were negative, spleen apparently enlarged. Abdomen not distended, and without rose spots. There was no pelvic tenderness. The free margin of the liver was exceedingly sensitive to pressure, and extended about an inch below the costal edge. The upper margin of liver flatness was at the fourth interspace in the mammary line, at least

two inches higher than normal, without any sufficient cause for upward displacement. It was even and regular.

Without giving a daily report of the progress of this case, I will simply say that up to her death, on the 20th of March, about six weeks after admission, no new symptoms of importance developed, with the exception that at one time some blood was found in the rather thin and frequent stools. Her temperature during nearly the whole of the period was pretty regularly 102 to 103 degrees in the afternoon and below 100 in the morning. Tongue remained moist throughout, and there were no rose spots, abdominal distention, or tenderness, except when the edge of the liver was touched; this always provoked an expression of pain. The upward growth of the liver increased somewhat, but it was symmetrical. The spleen became easily felt. Until after operation, patient was, as a rule, rather stupid, but continued in fairly good general condition and strength, though it was apparent that the constant fever was slowly wearing her out.

My first thought as to the diagnosis of this case was of hepatic suppuration. In a few days, however, the enlarged spleen, constant fever, and moderate diarrhoea, lead to the presumption of typhoid, and this diagnosis was moderately satisfactory for a time. Since, however, the fever showed no signs of abating, and the hepatic tenderness and enlargement became more pronounced as the case advanced, I soon began to doubt the correctness of the diagnosis, and the question of hepatic abscess again arose. About March 17 a consultation was held with Drs. McLaughlin and Rogers, and an exploratory puncture of the liver was considered advisable. This was done by Dr. Rogers in several different regions of the hepatic area on March 20, but with a negative result. The operation had, apparently, no harmful effect, but the patient was already weak, and six days later she sank into a condition of collapse and died.

Unfortunately the record of the autopsy, as dictated by Dr. Freeman, was lost. I was, however, present at the examination and the only pathological condition of importance we could discover was in connection with the liver. The latter was markedly enlarged, chiefly upwards, and it was amyloid. It was

surrounded and bound to the thoracic wall by a dense mass of fibrous tissue, the result of old perihepatitis. There were also areas of fresh perihepatitis, with recently exuded lymph. The kidneys were also slightly amyloid. There was no suppuration in the liver.

It may prove of interest and profit to base upon these cases a brief consideration of the important points of diagnosis of abscess of the liver. While the disease is by no means common, my own experience would indicate that it is liable to be encountered.

As you are all aware, hepatic suppuration, aside from traumatic abscesses, usually occurs in one of three forms: 1.—As the so-called solitary or tropical abscess, most frequent in hot climates, but occurring also in temperate zones, where it follows often upon an attack of dysentery. Its frequent cause is the *amœba coli*, which has recently been found in a considerable proportion of solitary abscesses. 2.—Suppuration of the gall ducts or suppurative cholangitis, associated oftenest with gall stones and permanent obstruction. 3.—Multiple abscesses, occurring in connection with infected emboli, which lodge in branches of the portal vein or hepatic artery, and oftenest secondary to some form of intestinal ulceration.

Bearing in mind, then, the fact that hepatic suppuration is nearly always a secondary infection, it will at once be evident that the etiological factor is of prime importance in diagnosis. I know of no disease in which the recent history of the patient should be more carefully elicited and weighed than in suspected abscess of the liver. In the first of the above cases there had been, both a long-continued diarrhoea and symptoms suggestive of appendicitis. In the second there was quite a clear history of dysentery. While, in the third, the one of mistaken diagnosis, there was only a history of syphilis, and the disease from which she died proved finally to have been of syphilitic character.

A rational symptom of great constancy is pain over the hepatic region, which may or may not radiate into the shoulder. There are a great variety of affections which may be attended by pain in the region of the liver, but if it be borne in mind that

hepatic abscess is usually a subacute, sometimes almost chronic disease, many of these can be readily eliminated. Empyema, subphrenic abscess, perihepatitis, and cancer of the liver are perhaps the most important of the disease to be carefully considered, and this can be more profitably done after physical examination.

The same may be said of hepatic tenderness, as indicated by palpation of the free margin of the liver. Although cases have been reported where all tenderness was lacking, in the great majority of instances the organ will be exquisitely sensitive to pressure, and other signs would have to be exceptionally unequivocal to warrant a diagnosis of abscess in the absence of this symptom. Perihepatitis may cause a like tenderness, but is not often accompanied by a steady hectic. The tenderness of cancer is much less pronounced indeed, often absent; and I have never seen it to any marked degree with affections of the pleura.

A hectic fever nearly always attends the development of hepatic abscess, the usual range of temperature being perhaps between 100° and 102° Fahr. It is stated that fever may be wholly lacking. Such a case would be extremely difficult to diagnosis in the absence of tumor, and is fortunately of rare occurrence. Every diagnostician of experience will appreciate the great weight to be attached in hepatic abscess, as elsewhere, to a temperature chart suggesting suppuration, and it must certainly be accorded a high rank among the physical signs of this disease.

Of the importance of a perceptible bulging of the ribs, or a palpable tumor connected with the liver, it is unnecessary to speak. The diagnosis is at once narrowed down to suppurating echinococcus, empyema of the gall bladder, or, possibly, of the pleura, cancer of the liver, and hepatic abscess. The gall bladder can usually be distinguished by its position and form. Cancer is not a febrile affection, and the nodular infiltration is usually diffuse. Echinococcus may be suggested by other round, hard tumors of the abdomen, or it may not be possible to exclude it until the contents of the abscess have been removed. Usually the diagnosis of an hepatic abscess which has

produced a local bulging with superficial œdema or a palpable fluctuating tumor is comparatively easy.

It is, however, exceedingly desirable to make at least a probable diagnosis before this stage is reached and when the chances of operative interference are most hopeful. This, I am convinced, can frequently be done by the aid of a careful physical examination of the liver, guided by a knowledge of the exact conditions to be looked for. The three cases above cited are, it seems to me, of some slight value to this end, both as conforming the experience of other observers, and also as suggesting a possible source of fallacy.

In the first case there was found, first, a line of flatness over the right chest, presenting approximately the letter of "S" curve and therefore strongly suggestive of pleural effusion. Second, a slight displacement of the heart toward the left, still further pointing to effusion. Third, inferior border of the liver nearly three inches below its normal position. That this could not be a simple displacement of the liver was obvious. A presumable pleural effusion only reaching the middle of the scapula and but very slightly displacing the heart could not possibly account for any such degree of displacement of the liver. On the other hand, it is well known that both hepatic abscess and cancer frequently cause a secondary pleuritis, and everything therefore pointed to hepatic enlargement with secondary pleuritic effusion. Fortunately the diagnosis between cancer and abscess was not difficult because of the slight œdematous bulging over the liver. The only question was between hepatic and subphrenic abscess, a point which was measurably settled by the color of the aspirated fluid.

The second case was still more instructive as regards physical diagnosis. Osler has called especial attention to the significance in solitary abscess of an upward enlargement of the liver, due to the fact that such abscesses frequently occupy the convexity of the organ, and therefore, like any other tumor in that situation, produces an upward bulging. He also points out that owing to this local bulging, the upper line of hepatic flatness is often irregular, presenting perhaps a curve with upward convexity at the spine, which in the axilla drops considerably

toward the base of the lung. In our case there was no such curve; the upper border of hepatic flatness was an even horizontal line. It was, however, about two inches higher than normal, and, since displacement was out of the question, the only plausible explanation was that of a local bulging of its convex upper surface. This point was of great weight with me in the diagnosis of this case. The history was, it is true, somewhat suggestive, but there were no chills or jaundice at the time, and there was no tumor. The hectic fever, the hepatic pain and tenderness, and this upper enlargement, were the three symptoms which led to an early diagnosis some six weeks before death. Unfortunately this did not benefit the patient. I blame myself severely for not having proposed an operation at the outset. The question was brought up later in consultation with Dr. McLauthlin, but it was then deemed inadvisable because of the great weakness of the patient, and the doubt as to whether the suppuration was not multiple. With my present knowledge, I think this upward enlargement should have been regarded as strong presumptive evidence of solitary abscess. I would not, of course, go so far as to affirm that a symmetrical upward extension of the area of hepatic flatness is an unequivocal sign of abscess or new growth. It cannot possibly have the diagnostic significance of an irregular line as described by Osler. I do think, however, that when pronounced, it has a very considerable diagnostic importance. It is a well-established fact that unless the liver is adherent to the thoracic wall, general enlargement of the organ, as, for example, amyloid, causes usually an extension of the liver flatness downward, and but little, if at all, upward. As far as I am aware, in the absence of upward displacement and of hepatic adhesions, there can be no cause for a position of the upper border of the liver at, for instance, the fourth rib in the mammary line, other than sub-phrenic abscess or some local tumor of the convexity of the liver. That an enlarged and adherent organ may produce the same physical sign is illustrated by the third case above reported. There also we had hectic fever, painful and tender liver, and both upward and downward enlargement. With Case II still under observation, the impression upon me was strong that I had to do here

also with a case of hepatic abscess. This proved to be an error. A combination of old adhesions and fresh perihepatitis, with amyloid enlargement and a peculiar condition of the interalveolar connective tissue, which I may report at another time, explained fully the pain and tenderness, with the usual upward extension of flatness. The fever, however, was not satisfactorily explained, even by the post-mortem examination, and it is for this reason especially that I hope to give still further study to the microscopical appearance of the liver structure in this case. I will merely remind you that the case was syphilitic, and it might well be borne in mind in dealing with a suspected hepatic suppuration.

One word more in regard to the possibility of confounding abscess of the liver with empyema, a matter often referred to and emphasized by writers. It seems to me that many of the mistakes have been made because of the persistence of the old idea that fluid in the pleural cavity assumes nearly a horizontal level. When the upper margin of flatness extends horizontally around the side, say at the level of the fourth interspace, there should be but little thought of effusion. Such a trio would almost invariably be the diaphragm, and could only be due to effusion when the latter chanced to be encapsulated by a horizontally adherent lung. The same would be true of the more extreme cases of upward bulging of the diaphragm such as have been described by Leyden as pyo-pneumothorax subphrenicus, cases in which there is a collection of pus and air between the diaphragm and liver. Leyden has found flatness in these cases as high as the third rib in front, and the same high position of the diaphragm has been met with in simple subphrenic abscess. An empyema would never present a horizontal line of flatness at the third rib. There is, on the contrary, in very large effusion, a curve with upward concavity which, leaving the sternum at say, the third rib, passes outward and then sharply upward so as to intersect the clavicle. In the empyema, therefore, reaching the third rib, we have a far greater compression of the lung, and hence bronchial respiration above the line of flatness, while in Leyden's cases good vesicular respiration was heard everywhere above this line. Another important point of dis-

tion, also emphasized by Leyden, is the relative degree of displacement of heart and liver. In moderate empyema we find both somewhat displaced; in any affection crowding up the diaphragm to the third and fourth ribs, the apex of the heart is nearly in its normal position, while the liver is pushed downward in a degree out of all proportion to the slight displacement of heart and mediastinum.

These, then, are the conclusions which I must venture to suggest from the study of these few and imperfectly reported cases:—that with hectic emaciation and hepatic pain and tenderness, an upward enlargement of the liver, even though symmetrical, affords strong confirmatory evidence of abscess; and that, at the same time, just such a complex of symptoms may be caused by a syphilitic affection of the liver, combining the pathological conditions of perihepatitis, amyloid degeneration, and possibly also a form of syphilitic hepatitis capable of producing continued fever and not yet hitherto perfectly described.

